REMARKS

The non-final Office Action was issued on pending claims 1-3 and 5. Claims 1-3 and 5 stand rejected. In this Response, claims 1 and 2 have been amended and no claims have been cancelled or added. Thus, claims 1-3 and 5 are pending in the application.

Applicants invite the Examiner to call Applicants' Representative to discuss any issues with this application.

Claim Rejections – 35 USC §103

In Office Action paragraph 3, claims 1-3 were rejected under 35 USC §103(a), as being unpatentable over Tokumaru et al. (US 5,611,015) in view of Yuhara et al. (US 5,677,973). In Office Action paragraph 3, claim 5 was rejected under 35 USC §103(a) as being unpatentable over Tokumaru et al in view of Yuhara et al. and further in view of Feth et al. (US 5,881,185). Applicants respectfully disagree.

Claims 1 and 2 have been amended. Applicants' invention, as claimed in claim 1, pertains to a method for estimating an amount of angular disagreement of planes of polarization between two polarization-maintaining optical fibers in which at least one of the polarization-maintaining optical fibers has a pair of stress applying sections. Claim 1 calls for the step of irradiating a light on the lateral side of said polarization-maintaining optical fibers during the connection of said polarization-maintaining optical fibers. Claim 1 also calls for the step of estimating the amount of angular disagreement of the plane of polarization of the polarization-maintaining optical fiber having said stress applying sections from a function of positions and heights of two peaks of brightness corresponding to the stress applying sections of a transmitted light produced by irradiating said light.

Similarly, the invention of claim 2 pertains to a method for estimating an amount of angular disagreement of planes of polarization between two polarization-maintaining optical fibers in which at least one of the polarization-maintaining optical fibers has a pair of stress

applying sections. Claim 2 calls for the step of irradiating a light on the lateral side of said polarization-maintaining optical fibers after the connection of said polarization-maintaining optical fibers. Claim 2 also calls for the step of estimating the amount of angular disagreement of the plane of polarization of the polarization-maintaining optical fiber having said stress applying sections from a function of positions and heights of two peaks of brightness corresponding to the stress applying sections of a transmitted light produced by irradiating said light.

The inventions of claims 1 and 2 provide advantages. For example, the angular disagreement of the polarization-maintaining optical fibers can be estimated accurately.

Applicants submit that Tokumaru et al., Yuhara et al. and Feth et al., alone or combined together, do not disclose or suggest the features of claims 1 or 2.

Tokumaru et al. pertains to a method for splicing two polarization-maintaining optical fibers. In Tokumaru et al., three peaks of brightness of the transmitted light are obtained by irradiating light on the lateral side of the polarization-maintaining optical fibers. First and second numerical values are calculated from relative positions of these peaks. The two polarization-maintaining optical fibers are aligned by moving the fibers such that the first and second values are equal.

However, Tokumaru et al. merely calculates values corresponding to the relative positions of the peaks. Tokumaru et al. does not disclose or suggest that the amount of angular disagreement of the planes of polarization is estimated using the heights of two peaks of brightness of the transmitted light produced by irradiating light on the lateral side of the polarization-maintaining optical fibers. Tokumaru et al. will not accurately measure the amount of angular disagreement of the planes of polarization. As described in the specification of the present application, the relationship between the positions of the peaks and the amount of angular disagreement of the planes of polarization varies in accordance with the characteristics of the polarization-maintaining optical fibers, especially with the shape, material, and refractive index of stress applying sections provided therein. Therefore, the amount of angular disagreement of the planes of polarization cannot be accurately measured from only the positions

of the peaks. Therefore, the amount of angular disagreement of the planes of polarization cannot be accurately measured in Tokumaru et al.

As to Yuhara et al., Yuhara et al. describes a method for estimating an angle of inclination of an optical fiber around its axis. In Yuhara et al., a plurality of peaks of brightness of the transmitted light are obtained by irradiating light on the lateral side of the optical fiber, and the angle is estimated from the positions and heights of these peaks. However, the optical fiber of Yuhara et al. does not have a pair of stress applying sections, see, for example, Fig. 11A of Yuhara et al. Therefore, in Yuhara et al. two peaks of brightness corresponding to the position of two stress applying sections cannot be obtained because Yuhara et al. does not have two stress applying sections in the optical fiber. Furthermore, in Yuhara et al., although the heights of the peaks are used to estimate the angle of the optical fiber, the heights are only used as references to estimate the inclination of the fiber. Yuhara et al. does not disclose or suggest that the heights of the peaks are used as an element of the function to estimate the amount of angular disagreement of the plane of polarization of the polarization-maintaining optical fiber.

Furthermore, Applicants submit there is no teaching, suggestion or incentive to combine Tokumaru et al. (in which the heights of two peaks of brightness corresponding to the stress applying sections are not used), and Yuhara et al. (in which the optical fiber having a pair of stress applying sections is not used and two peaks of brightness cannot be obtained). Moreover, the feature of the present application of the amount of angular disagreement of the plane of polarization of the polarization-maintaining optical fiber having the stress applying sections being estimated from a function of positions and heights of two peaks of brightness corresponding to the stress applying sections, is not obvious from Tokumaru et al. and Yuhara et al. even if those two references are combined.

Regarding Feth et al., Applicants submit that Feth et al. does not remedy the deficiencies of Tokumaru et al. and Yuhara et al. Furthermore, Feth et al. does not disclose or suggest a concrete method for estimating the amount of angular disagreement of planes of polarization.

Thus, Applicants respectfully submit that the §103(a) rejections have been overcome.

CONCLUSION

For the foregoing reasons, Applicants submit that the patent application is in condition for allowance and request a Notice of Allowance be issued.

Respectfully submitted,

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Dated: April 27, 2004